

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-16. (Cancelled).

17. (Currently Amended) A vibrating piece comprising:

a base; and

a vibration arm section formed so as to protrude from the base, a grooved portion being formed in at least one of an obverse surface and a rear surface of said vibration arm section;

wherein a cut section is formed in said base, and

an electrode section is formed in a part of said grooved portion so that a crystal impedance value ratio of said vibrating piece (CI value of the harmonic wave / CI value of the fundamental wave) becomes 1.0 or more.

18. (Cancelled).

19. (Previously Presented) A vibrating piece according to Claim 17,

wherein a longitudinal length of the electrode section formed in said part of said grooved portion of said vibration arm section is approximately 45% to approximately 55% of a length of said vibration arm section.

20. (Previously Presented) A vibrating piece according to Claim 17, wherein said electrode section further comprises an excitation electrode.

21. (Previously Presented) A vibrating piece according to Claim 17, wherein: a fixation area for fixing the vibrating piece is provided in said base; and said cut section is provided in the base between the fixation area and said vibration arm section.

22. (Previously Presented) A vibrating piece according to Claim 17, wherein said vibrating piece further comprises a tuning-fork vibrating piece formed by a crystal which oscillates at approximately 30 kHz to approximately 40 kHz.

23. (Currently Amended) A vibrator having a vibrating piece housed in a package, said vibrating piece comprising:

 a base; and

 a vibration arm section formed so as to protrude from the base, a grooved portion being formed in at least one of an obverse surface and a rear surface of said vibration arm section;

 wherein a cut section is formed in said base; and

 an electrode section is formed in a part of said grooved portion so that a crystal impedance value ratio of said vibrating piece (CI value of the harmonic wave / CI value of the fundamental wave) becomes 1.0 or more.

24. (Cancelled).

25. (Previously presented) A vibrator according to Claim 23, wherein a longitudinal length of the electrode section formed in said part of said grooved portion of said vibration arm section is approximately 45% to approximately 55% of a length of said vibration arm section.

26. (Previously Presented) A vibrator according to Claim 23, wherein said electrode section further comprises an excitation electrode.

27. (Previously Presented) A vibrator according to Claim 23, wherein:
a fixation area for fixing the vibrating piece is provided in said base; and
said cut section is provided in the base between the fixation area and said vibration arm section.

28. (Previously Presented) A vibrator according to Claim 23, wherein said vibrating piece further comprises a tuning-fork vibrating piece formed by a crystal which oscillates at approximately 30 kHz to approximately 40 kHz.

29. (Previously Presented) A vibrator according to Claim 23, wherein said package is formed in a box shape.

30. (Previously Presented) A vibrator according to Claim 23, wherein said package is formed in a cylinder shape.

31. (Cancelled).

32. (Cancelled).

33. (Previously Presented) A vibrating piece comprising:
a base; and
a vibration arm section formed so as to protrude from the base, a grooved portion being formed in at least one of an obverse surface and a rear surface of said vibration arm section;
wherein a cut section is formed in said base,
an electrode section is formed in a part of said grooved portion; and
a longitudinal length of the electrode section formed in said part of said grooved portion of said vibration arm section is approximately 45% to approximately 55% of a length of said vibration arm section.

34. (Previously Presented) A vibrator having a vibrating piece housed in a package, said vibrating piece comprising:
a base; and

a vibration arm section formed so as to protrude from the base, a grooved portion being formed in at least one of an obverse surface and a rear surface of said vibration arm section;

wherein a cut section is formed in said base;

an electrode section is formed in a part of said grooved portion; and

a longitudinal length of the electrode section formed in said part of said grooved portion of said vibration arm section is approximately 45% to approximately 55% of a length of said vibration arm section.